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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,694	09/05/2003	Jang-Sub Kim	1190860-991230	1964

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EXAMINER	
YAMNITZKY, MARIE ROSE	
ART UNIT	**PAPER NUMBER**
1774	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/655,694	KIM, JANG-SUB	
	Examiner	Art Unit	
	Marie R. Yamnitzky	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1, 2 and 5-7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polymer organic electroluminescence display comprising a compound represented by Chemical Formula 1 or 2 between an anode and cathode wherein M in formula 1 or 2 is a transition metal, does not reasonably provide enablement for the claimed display wherein M in formula 1 or 2 is a nonmetal. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

While portions of the specification teach that M may be a nonmetal, insufficient information is provided as how to make a compound represented by chemical formula 1 or 2 wherein M is a nonmetal, and how to make an electroluminescence display using such a compound. No specific examples of suitable nonmetals are disclosed. The examiner also notes that the title of the invention, the abstract, and the first paragraph of the specification would all suggest to one of ordinary skill in the art that M must be a metal. If M in formula 1 or 2 is a nonmetal, the compounds are not metallocenes.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 5,902,677) in view of Hirao et al. in *J. Chem. Soc., Dalton Trans.*, 1996, pp. 2929-2933.

Shi et al. teach that conductive polymers such as poly(ferrocenes) and derivatives thereof may be used in a layer between an anode and a cathode in an organic electroluminescent display device. See the whole patent. In particular, see column 1, lines 4-6, c. 4, l. 38-60, and claims 4 and 11.

Shi et al. do not disclose any formulae for poly(ferrocenes) and derivatives thereof.

The compound of present Chemical Formula 3, which is a subset of compounds of present Chemical Formula 1, is a poly(ferrocene). Chemical Formula 1 encompasses poly(ferrocene) and substituted derivatives thereof.

Poly(ferrocenes) and derivatives thereof as represented by Chemical Formula 1 and Chemical Formula 3 were known at the time of the present invention and at the time of Shi's invention, and were known to be conductive. For example, see the disclosure of Hirao et al. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to select from known poly(ferrocenes) and poly(ferrocene) derivatives, such as those disclosed by Hirao et al., to provide the layer of conductive polymer in Shi's device.

4. Claims 2, 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 5,902,677) in view of Buretea et al. in *Organometallics*, 1997, pp. 1507-1510.

Shi et al. teach that conductive polymers such as poly(ferrocenes) and derivatives thereof may be used in a layer between an anode and a cathode in an organic electroluminescent display

device. See the whole patent. In particular, see column 1, lines 4-6, c. 4, l. 38-60, and claims 4 and 11.

Shi et al. do not disclose any formulae for poly(ferrocenes) and derivatives thereof.

The compound of present Chemical Formula 4, which is a subset of compounds of present Chemical Formula 2, is a poly(ferrocene) derivative. Chemical Formula 2 encompasses poly(ferrocene) derivatives.

Poly(ferrocene) derivatives as represented by Chemical Formula 2 and Chemical Formula 4 were known at the time of the present invention and at the time of Shi's invention, and were known to be conductive. For example, see the disclosure of Buretea et al. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to select from known poly(ferrocene) derivatives, such as those disclosed by Buretea et al., to provide the layer of conductive polymer in Shi's device.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 5,902,677) in view of Hirao et al. in *J. Chem. Soc., Dalton Trans.*, 1996, pp. 2929-2933 as applied to claims 1, 3, 6 and 7 above, and further in view of Mori et al. (US 5,281,489).

Claim 5 requires a polymer organic luminescence layer. The specific emitter materials disclosed at c. 3, l. 30-57 of the Shi patent are not polymeric materials, but Shi's invention is not limited to the specific emitter materials disclosed at c. 3, l. 30-57.

The use of polymeric emitter materials was known in the art at the time of the present invention and Shi's invention. The use of polymeric binder materials in the luminescence layer

was also known in the art at the time of the present invention and Shi's invention. For example, see column 23, line 39-c. 25, l. 10, and c. 27, l. 15-30 in the patent to Mori et al. It would have been a *prima facie* obvious modification to one of ordinary skill in the art to utilize a polymeric emitter material in place of, or in addition to, the specific low molecular weight materials disclosed by Shi et al. and/or to include a polymeric binder in the luminescence layer of Shi's device. As demonstrated by the patent to Mori et al, such modifications were known in the art at the time of the invention.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US 5,902,677) in view of Buretea et al. in *Organometallics*, 1997, pp. 1507-1510 as applied to claims 2, 4, 6 and 7 above, and further in view of Mori et al. (US 5,281,489).

Claim 5 requires a polymer organic luminescence layer. The specific emitter materials disclosed at c. 3, l. 30-57 of the Shi patent are not polymeric materials, but Shi's invention is not limited to the specific emitter materials disclosed at c. 3, l. 30-57.

The use of polymeric emitter materials was known in the art at the time of the present invention and Shi's invention. The use of polymeric binder materials in the luminescence layer was also known in the art at the time of the present invention and Shi's invention. For example, see column 23, line 39-c. 25, l. 10, and c. 27, l. 15-30 in the patent to Mori et al. It would have been a *prima facie* obvious modification to one of ordinary skill in the art to utilize a polymeric emitter material in place of, or in addition to, the specific low molecular weight materials disclosed by Shi et al. and/or to include a polymeric binder in the luminescence layer of Shi's

device. As demonstrated by the patent to Mori et al, such modifications were known in the art at the time of the invention.

7. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
October 31, 2005

Marie R. Yamnitzky

MARIE YAMNITZKY
PRIMARY EXAMINER

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